SERIAL NO.:

10/608,544

FILED: Page 2

June 30, 2003

AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1. (Currently Amended). An apparatus comprising:

two or more antennas to receive modulated radio frequency (RF) signals; and an antenna receiver coupled to said two or more antennas, the antenna receiver including an at least one antenna weighted value generator to provide an antenna weighted value to said modulated radio frequency (RF) signals [[a]] received signal from said two or more antennas,

wherein said at least one antenna weighted value generator is able to generate said antenna weighted value by a manipulation of manipulating a first value derived from an amplitude of the received modulated radio frequency (RF) signals and a second value derived from a phase of the received modulated radio frequency (RF) signals.

- 2. (Currently Amended). The apparatus of claim 1, wherein the at least one antenna weighted value generator comprises:
 - a first variable amplifier to adjust an amplitude of the received signal modulated radio frequency (RF) signals and to output amplitude adjusted modulated radio frequency (RF) signals; and
 - a-second and third variable amplifiers amplifier operably coupled to the first amplifier, to adjust the phase of the amplitude adjusted receive modulated radio frequency (RF) signals signal.
- 3. (Currently Amended). The apparatus of claim 2, wherein the second variable amplifier is able to provide a real portion of the phase of the antenna weighted value and the third variable amplifier is able to provide an imaginary portion of the phase of the antenna weighted value.

SERIAL NO.: FILED:

10/608,544 June 30, 2003

Page 3

- 4. (Canceled).
- 5. (Canceled).
- 6. (Canceled).
- 7. (Canceled).
- 8. (Canceled).
- 9. (Currently Amended). The apparatus of claim [[5]] 1, wherein the antenna receiver comprises first and second antenna weighted value generators provided to provide first and second antenna weighted values, respectively, received signals and the apparatus further comprising:

a radio frequency (RF) section which includes said first antenna weighted value generator to output a pair of first real and first imaginary antenna weighted radio frequency (RF) signal components, said second antenna weighted value generator to output a pair of second real and second imaginary antenna weighted radio frequency (RF) signal components, a first adder to combine the first and second real radio frequency (RF) signal components of the first and second antenna weighted received signals of the first and second antenna weighted value generators, respectively, and to provide a real component of a radio frequency signal;, and a second adder to combine the first and second imaginary radio frequency (RF) signal components of first and second antenna weighted received signals, respectively, and to provide an imaginary portion of the radio frequency signal.

10. (Currently Amended). The apparatus of claim 9, wherein the antenna receiver comprises:

SERIAL NO.: FILED:

10/608,544 June 30, 2003

Page 4

a radio frequency (RF) to an intermediate frequency (IF) quadrature downconverter to receive a combined antenna weighted radio frequency (RF) real signal from said first adder and a combined antenna weighted radio frequency (RF) imaginary signal from said second adder, and to output provide an in-phase portion and a quadrature portion of an intermediate frequency (IF) signal; and

an intermediate frequency (IF) to baseband downconverter operably coupled to said radio frequency (RF) to intermediate frequency (IF) quadrature downconverter, to downconvert said in-phase portion and said quadrature portion of said intermediate frequency signal to an in-phase portion and a quadrature portion of a baseband signal.

11. (Currently Amended). An apparatus comprising:

two or more dipole antennas to receive two or more modulated radio frequency (RF) signals; and

an antenna receiver coupled to said two or more antennas, the antenna receiver including at least two or more antenna weighted value generators to provide antenna weighted values to the two or more modulated radio frequency (RF) signals received at the two or more antennas, respectively,

wherein at least one of said two or more antenna weighted value generators is able to generate a first antenna weighted value based on a manipulation of a first value derived from an amplitude of the two or more received modulated radio frequency (RF) signals and a second antenna weighted value derived from a phase of the two or more modulated radio frequency (RF) received signals.

- 12. (Currently Amended). The apparatus of claim 11, wherein the said at least one antenna weighted value generator comprises:
 - a first variable amplifier to adjust an amplitude of the received modulated radio frequency (RF) signals and to provide output an amplitude adjusted modulated radio frequency (RF) signals; and
 - a second and third variable amplifiers operably coupled to the first variable amplifier, to adjust the phase of the amplitude adjusted radio frequency (RF) signals.

SERIAL NO.: FILED:

10/608,544 June 30, 2003

Page 5

13. (Currently Amended). The apparatus of claim 12, wherein the second variable amplifier is able to provide a real portion of the phase of the antenna weighted value and the third variable amplifier is able to provide an imaginary portion of the antenna weighted value to the received signal.

14. (Canceled).

15. (Currently Amended). The apparatus of claim 11, wherein the antenna receiver comprises first and second antenna weighted value generators provided to provide first and second antenna weighted values, respectively, received signals and the apparatus further comprising:

a radio frequency (RF) section which includes said first antenna weighted value generator to output a pair of first real and first imaginary antenna weighted radio frequency (RF) signal components, said second antenna weighted value generator to output a pair of second real and second imaginary antenna weighted radio frequency (RF) signal components, a first adder to combine the first and second real radio frequency (RF) signal components of the first and second antenna weighted received signals of the first and second antenna weighted value generators, respectively, and to provide a real component of a radio frequency signal;, and a second adder to combine the first and second imaginary radio frequency (RF) signal components of first and second antenna weighted received signals, respectively, and to provide an imaginary portion of the radio frequency signal.

- 16. (Currently Amended). The apparatus of claim 15, wherein the antenna receiver comprises:
 - a radio frequency (RF) to an intermediate frequency (IF) quadrature downconverter to receive a combined antenna weighted radio frequency (RF) real signal from said first adder and a combined antenna weighted radio frequency (RF) imaginary signal from said second adder, and to output provide an in-phase portion and a quadrature portion of an intermediate frequency (IF) signal; and

SERIAL NO.: FILED:

10/608,544

Page 6

June 30, 2003

an intermediate frequency (IF) to baseband downconverter operably coupled to said radio frequency (RF) to intermediate frequency (IF) quadrature downconverter, to downconvert said in-phase portion and said quadrature portion of said intermediate frequency signal to an in-phase portion and a quadrature portion of a baseband signal.

17. (Currently Amended). A communication system comprising:

a first communication device to transmit a plurality of modulated radio frequency (RF) signals over a plurality of channels;

a second communication device to receive the plurality of modulated radio frequency (RF) signals by a plurality of antennas operably coupled to an antenna receiver having a radio frequency (RF) section to provide antenna weighted values to the modulated radio frequency (RF) signals and to produce antenna weighted radio frequency (RF) signals, a radio frequency (RF) to an intermediate frequency (IF) quadrature downconverter to downconvert the antenna weighted radio frequency (RF) signals to an antenna weighted intermediate frequency (IF) signal, and an intermediate frequency (IF) to baseband downconverter to downconvert said antenna weighted intermediate frequency (IF) signal to an antenna weighted baseband signal.

combine the plurality of signals by providing antenna weighted values to the signals:

18. (Currently Amended). The communication system of claim 17, wherein the radio frequency (RF) section of the antenna receiver-second communication-device comprises:

an antenna receiver-comprises a plurality of antenna weighted value generators operably coupled to the plurality of antennas and wherein[[,]] an antenna weighted value generator of the plurality of the antenna weighted value generators is able to provide an antenna weighted value to the plurality of modulated radio frequency (RF) signals based on a manipulation of a first value derived from an amplitude of a received modulated radio frequency (RF) signal received by an antenna of the plurality of antennas and a second value derived from a phase of the received modulated radio frequency (RF) signal.

SERIAL NO.:

10/608,544

FILED:

June 30, 2003

Page 7

19. (Currently Amended). The communication system of claim 17, wherein the radio frequency (RF) section of the antenna receiver further comprises:

a first adder to combine real portions of the plurality of antenna weighted received modulated radio frequency (RF) signals and to provide a real portion of a modulated radio frequency (RF) signal; and

- a second adder to combine plurality of imaginary portions of the plurality of antenna weighted received modulated radio frequency (RF) signals and to provide an imaginary portion of the modulated radio frequency (RF) signal.
- 20. (Currently Amended). The communication system of claim 19, wherein the radio frequency to an intermediate frequency quadrature downconverter of the antenna receiver further comprises: a radio frequency to an intermediate frequency quadrature downconverter is able to provide an in-phase portion and a quadrature portion of an intermediate frequency signal.
- 21. (Currently Amended). The communication system of claim 20, wherein the intermediate frequency to a base band frequency downconverter of the antenna receiver further comprises: an intermediate frequency to a base band frequency downconverter coupled to a radio frequency to an intermediate frequency downconverter is able to provide a real portion and an imaginary portion of a base band [[e]] frequency signal.

22. (Currently Amended). A method comprising:

receiving a plurality of modulated radio frequency (RF) signals by two or more antennas;

determining antenna weight values based on channel estimated information; weighting said plurality of modulated radio frequency (RF) signals by adjusting an amplitude and a phase of the plurality of modulated radio frequency (RF) signals according to the antenna weight values-based on a channel estimated information; and combining the plurality of weighted signals to provide [[a]] an antenna weighted radio frequency (RF) signal.

SERIAL NO.:

10/608,544

FILED: Page 8

June 30, 2003

23. (Currently Amended). The method of claim 22 further comprising:

transmitting the signals over plurality of channels; and receiving the signals by plurality of antennas

downconverting said antenna weighted radio frequency (RF) signal to an antenna weighted intermediate frequency (IF) signal.

24. (Currently Amended). The method of claim 23, further comprising downconverting the radio frequency signal to an the antenna weighted intermediate frequency signal to an antenna weighted baseband signal.